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Description

MOVING PUNCHING BAG AND METHOD

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of provisional application _____.

BACKGROUND OF INVENTION

[0002] This invention relates to an apparatus and method of use for conducting the physical training of a boxer, kick boxer, or other similarly trained combatants. More particularly, this invention relates to an apparatus and method to improve the coordination, reflex, and technique of a combatant by simulating the random movement of an opponent.

[0003] Equipment that is traditionally used for training a combatant ranges from a small tethered ball to heavy bags. Other such equipment includes light punching bags, training bags, athletic bags, punching bags filled with air or water, speed bags, rebound punching aids, and other types of training targets.

[0004] The traditional training tools fail to fully develop the coordination, reflex and technique of a training combatant because they are affixed to a specified location. By fixing the training tool to a single location, the training combatant does not fully develop skills that are required when facing an opponent that moves in random directions.

[0005] There exist only a few devices that simulate the random movement of an opponent. Patent 5,048,822 discloses a punching bag mounted upon a raised track which can be moved along a path. Patent 5,224,912 discloses an overhead punching bag support comprising a beam, with rotatable and linear movement. Patent 4,911,428 discloses an overhead support comprising a beam having a punching bag support at one end of the beam and a caster wheel at the opposite end. Each of these supports requires overhead installation, which makes each of these devices impractical for a building or gym which has a high ceiling or inadequate means to support the overhead installation.

[0006] A second shortcoming of these devices is the permanence of their installation. Combatants do not always train where they compete, meaning that the preferred training tools cannot be easily relocated to a location where the training

will be completed or where the competition will take place.

[0007] A need exists for a free-standing, self supporting, easily relocated training device which simulates the random movement of an opponent.

SUMMARY OF INVENTION

[0008] The void in the prior art is filled by the present invention. The present invention provides a free-standing, self supporting, rotatable, and relocatable apparatus from which to suspend a training device, whereby the movement of the training device can be controlled so as to simulate the random movement of an opponent, thereby improving upon the coordination, reflexes, and technique of a trainee.

[0009] One embodiment of the present invention is an apparatus comprising a base, a support connected to the base, a vertical member rotatably connected to the support, a horizontal member, a means for rotating the vertical member, and a means for suspending a training device to the horizontal member. The apparatus is constructed such that it is free-standing and easily dismantled for transportation.

[0010] In one aspect, the invention provides a free-standing ro-

tatable support apparatus useful for physical training. The apparatus has a support base, a rotatable shaft extending upward from the support base, a bearing locator for positioning at least one bearing for the shaft above the support base, a transverse member secured to the shaft and spaced from the support base, and a training target depending from the transverse member laterally spaced from the shaft. The apparatus also has a drive for rotating the vertical member.

[0011] The support base can have a flat plate, which can be circular, rectangular, polygonal or the like. The support base can alternatively have three or more outwardly extending legs.

[0012] The transverse member can be reinforced with truss supports. A length from the shaft to a farthest end of the transverse member is preferably greater than a distance from the shaft to a furthest point on a periphery of the support base.

[0013] The drive can be an electric motor, especially a reversible motor. The motor can be a variable speed motor, optionally including a controller, such as for example, a local control, a remote control, a programmable control mechanism, and so on.

[0014] The training target can be a heavy bag, a punching bag, a speed bag, or the like. The training target can be made of polymer foam.

[0015] In another aspect, the invention provides a method for conducting physical training with the apparatus described above. The method can include positioning the apparatus on a floor of a training area, and rotating the target in a circular arc around the shaft while a trainee spars with the training target. The method can also include randomly varying the direction of rotation, randomly varying the speed of the rotation, or a combination thereof.

Brief Description of Drawings

[0016] Figure 1 is a side elevation view of a preferred embodiment of the apparatus of the present invention.

[0017] Figure 2 is a side elevation of the bearing locator and base of the apparatus of Figure 1.

[0018] Figure 3 is a plan view of the base of the apparatus of Figures 1 and 2.

[0019] Figure 4 is a front elevation of the bearing locator and base of Figure 2.

[0020] Figure 5 is a side view of the transverse member of the apparatus of Figure 1.

[0021] Figure 6 is a bottom view of the transverse member of

Figure 5.

[0022] Figure 7 is a top plan view of the apparatus of Figures 1-6.

DETAILED DESCRIPTION

[0023] One embodiment of the apparatus of the present invention is shown in Figures 1. The apparatus generally consists of a support base *10*, bearing locator *20*, drive *30*, rotatable shaft *40*, transverse member *50*, and training target *60*, as shown in Figure 1.

[0024] The preferred embodiment is shown in Figures 2- 6, illustrating the preferred component parts of the apparatus. It is easily understood by those skilled in the art that minor modifications of the apparatus or substitutions of like components does not vary the scope of the present invention.

[0025] As shown in Figures 2 and 3, the base support *10* has a width, *w*, and a thickness, *t*, such that the apparatus is sturdy, freestanding and will be stable when a heavy bag or other training targets are connected to and used with the apparatus. Although the preferred embodiment depicts the base support as square in shape, it is readily understood that the shape of the base support can be of any variety of shapes, including round, oval, octagonal, etc.

[0026] Support base *10* further includes holes *13* which are used to bolt the bottom shaft support *17* to the support base *10*. Holes *13* are positioned near the center of support base *10* so as to provide stability to the structure during operation of the apparatus. It should be readily understood that bottom shaft support *17* can also be connected to support base *10* by screwed connection, welding, or other well known means.

[0027] As shown in Figure 2, bearing locator*20* is attached to the base support *10*. Bearing locator *20* generally consists of angle support *21*, and vertical support *22*, each of which is preferentially welded to base support *10*. Angle support *21* and vertical support *22* can alternatively be bolted, screwed, etc. to base support *10*. Bearing locator *20* supports shaft *40* during operation and is designed to promote stability of the apparatus.

[0028] Plates *23*,*24*, and *25* are attached to vertical support *22*, as shown in Figures 2 and 4. Plate *23* is located at the same height for which the drive *30* is desired to be installed. Plate *24* is preferably located near the middle of vertical support *22*, and plate *25* is preferentially located at the top of vertical support *22*.

[0029] Bearings*27* and *28* are attached to plates *24* and *25*. Bear-

ings *27* and *28* have an inner diameter similar to that of the outer diameter of shaft *40*, such that shaft *40* can be inserted through bearings *27* and *28*. Bearings *27* and *28* can further include bearings or other devices commonly used to decrease the friction associated with the rotation of shaft *40* while simultaneously supporting shaft *40*.

[0030] Vertical support *22* is located such that bearings *27* and *28* are vertically aligned with bottom shaft support *17*. Bottom shaft support *17* is similar to bearings *27* and *28*, having an inner diameter such that shaft *40* can be inserted. Bottom shaft support *17* can further include bearings or other means to decrease the friction associated with the rotation of shaft *40*.

[0031] Returning to Figure 1, shaft *40* has a top end and a bottom end. The bottom end is placed in bottom shaft supports *17*, such that the top end is above bearing *28*. On the top of shaft *40* is a connection device *41A*. Connection device *41A* mates with connection device *41B* such that shaft *40* and transverse member *50* are dependently connected, so that transverse member *50* turns in unison with the rotation of shaft *40*. Connection device *41A* and *41B* may be a flanged connection or a similar device for mating two parts.

[0032] A coupling device (not shown) can be attached to shaft *40*. The coupling device allows for drive *30* to be used for rotatingshaft *40* by means of a pulley or other common methods for imparting rotation on a shaft. In an alternative embodiment, shaft *40* is directly coupled to drive *30*.

[0033] Transverse member *50* is shown in detail in Figures 5 and 6. Training target *60* is connected at one end of transverse member *50*. The overall length *L* of horizontal member *50* is based upon two factors. The first is the width or diameter of base *10*. The distance from connection device *41B* to the middle of training target *60* should be greater than the distance from the location of bottom shaft support *17* to any point along the perimeter of support base *10*. This will help ensure that support base *10* does not interfere with the trainee while the device is in operation. The distance from the connection device *41B* to the end opposite training target *60*, and the remaining structure shown as part of horizontal member *50* is preferably based upon the structure needed to support training target *60*, so as to provide stability during use of the apparatus and to provide durability of the apparatus.

[0034] Drive*30* can be chosen from a variety of equipment. In one embodiment of the invention, drive *30* is a reversible con-

stant speed motor. This would allow shaft *40* to be rotated clockwise or counterclockwise, as indicated by the arrows in Figure 7. The rotation in this manner allows the simulation of an opponent advancing or retreating, or an opponent crossing from the left or right, depending upon the position of the trainee (A, B, or C), as shown in Figure 7.

[0035] In another embodiment, drive *30* is a reversible variable speed motor such that shaft *40* can be rotated clockwise or counterclockwise at varying speeds so as to simulate an opponent that does not move at constant speeds.

[0036] In the preferred embodiment, drive *30* is a reversible variable speed variable frequency motor with control means *35* such that the rotation of shaft *40* can be remotely controlled so as to randomly rotate shaft *40* clockwise or counterclockwise at varying speeds so as to best simulate the random movements of an opponent.

[0037] The apparatus of the present invention is typically constructed of primarily of steel however other suitable materials can also be used. The overall shape and design of the apparatus may be varied based upon the materials used, the inherent properties of the materials, and the dimensions of the component parts without deviating from the scope of this invention.

[0038] Training target*60* can be a speed bag, a heavy bag, a light punching bag, a rebound target, or any number of other training devices common to boxing and the martial arts or other forms of combatant arts. The apparatus of the present invention preferably has a connection which is universally adapted to the aforementioned training targets *60*.

[0039] In a preferred embodiment, training target *60* is selected to be a large foam target suspended for use by a trainee. The foam material is preferably non-rigid polyurethane foam of type M110B, manufactured by E.R. Carpenter, having a density between 2.1 and 2.18 lb/cu. ft., and an IOD firmness between 105 and 115. This type of foam is suitable for striking without protection on the trainee"s appendages, as is often required with other types of training devices.

[0040] A preferred method for use of the apparatus was alluded to earlier in this description. Referring again to Figures 1 and 7, the desired training target *60* is attached to transverse member *50*. The trainer or coach will remotely control the drive *30* to vary the speed and direction that the training target *60* is traveling while the trainee practices his art on the training target *60*. To improve the trainee's

skill, reflexes, coordination, and technique, the trainer will preferentially control drive 30 in a random pattern so as to mimic an opponent.